

# Blocked Piping

EPSC Learning Sheet June 2020



## What Happened:

A 4-inch pipeline from a distillation column to the PSV was plugged with polymer. High pressure events deformed the piping, as the pressure valve was blocked



## Aspects:

- The incident happened at a debutaniser distillation column in a refinery that separates C3 and C4 products
- Double bonds can undergo radical polymerisation. Butadiene is known to do this well, even at reduced concentration (as of 30%, depending on temp. & pressure)
- Oxygen is an initiator: keep oxygen concentration low, add O<sub>2</sub> scavengers and passivate equipment before start-up
- Concentrations can build-up in dead end piping, like piping to a PSV, continuously flushing these lines can prevent issues
- Learn to recognise deformed piping, as you can see that from the deformed paint (see the red circle). Report this
- Include polymerization in pipelines in Hazard Analysis

Understand where Polymerisation can be expected and cause problems